## Robust Summaries

| ENVIRONMENTAL FATE – BIODEGRADATION | |
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| ***Test Substance*** | |
| Chemical Name | Rosin, fumarated |
| CAS # | 65997-04-8 |
| Remarks | This substance is referred to as fumarated rosin in the test plan for Rosin Adducts and Adduct Salts. |
| ***Method*** | |
| Method/Guideline followed | Testing was conducted according to OECD Test Method 301 D, "Ready Biodegradability: Closed Bottle Test" |
| Test Type (aerobic/anaerobic) | Aerobic |
| GLP (Y/N) | Y |
| Year (Study Performed) | 1993 |
| Contact time | 28 days |
| Inoculum | Secondary effluent from Rungsted Treatment plant |
| Test conditions | Inoculum: Secondary effluent was collected from Rungsted Treatment plant in Horsholm.<br><br>Concentration of test chemical: A stock solution of the test material (2 g/L) was prepared in demineralized water by ultra sonication for 5 minutes followed by magnetic stirring for 24 hours at 20$^{o}$C. The solution was filtered and, after determination of the chemical oxygen demand, it was used within the same day.<br><br>Test Setup: Test medium was prepared by adding 1 mL each of four solutions (potassium phosphate, magnesium sulfate, calcium chloride, ferric chloride) to 1 liter of demineralized water, which was aerated to an initial oxygen concentration of approximately 9 mg $O_2$/L and inoculated with 1 drop of secondary effluent per liter. The test article was added at 204 mg/L to a part of the inoculated test medium, equivalent to a chemical oxygen demand of 4.49 mg $O_2$/L. Sodium benzoate, the reference compound, was added at 2 mg/L to another part of the inoculated medium (to assess the activity of the inoculum), equivalent to a theoretical oxygen demand of 3.34 mg $O_2$/L. Both the test and reference articles (204 mg/L and 2 mg/L) were added to a third part of the inoculated medium (to assess possible inhibitory effects of the test article), at a theoretical oxygen demand of 7.83 mg $O_2$/L. Blank controls were prepared using the inoculated medium without test or reference materials. After the samples were prepared, the medium was transferred to calibrated respirometric bottles (BOD bottles), and placed in the dark at 20$^{o}$C. The study was performed in triplicate. |

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| | Sampling frequency: Samples were collected for BOD analysis on days 0, 7, 14, 21, and 28.<br><br>Controls: Yes.<br><br>Method of calculating oxygen demand: Oxygen demand was calculated as the difference between the measured oxygen concentrations at time t and the start of the test. Biological oxygen demand for the added carbon sources was calculated by subtracting the oxygen demand for the blank controls from the oxygen demand in the bottles containing test and reference compounds. |
| ***Results*** | |
| Degradation % after time | 6.2% after 7 days and 15% after 28 days (test article); 59% after 7 days and 88% after 28 days (sodium benzoate) |
| ***Conclusions*** | The biological oxygen demand for fumarated rosin was 6.2 and 15% of the theoretical oxygen demand after 7 and 28 days, respectively. These data indicate that the test material is dominated by recalcitrant compounds. Fumarated rosin did not inhibit the respiratory activity of the inoculum. The inoculum had satisfactory activity as demonstrated by approximately 60% degradation within the 7 days using the reference compound. |
| ***Data Quality*** | Reliable without restrictions– Klimisch Code 1a |
| ***References*** | Madsen, T. 1993. Biodegradation of [fumarated] rosin. GLP Study No. 308067/476. Water Quality Institute, Horsholm, Denmark. |